



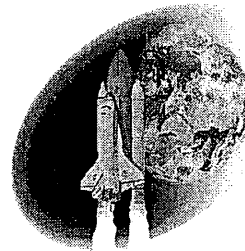
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Space Shuttle Projects Office (MSFC)
NASA Marshall Space Flight Center, Huntsville, Alabama



NASA Space Shuttle Program Shuttle Environmental Assurance (SEA) Initiative

CQSDI Conference
March 4, 2002
Cape Canaveral, Florida

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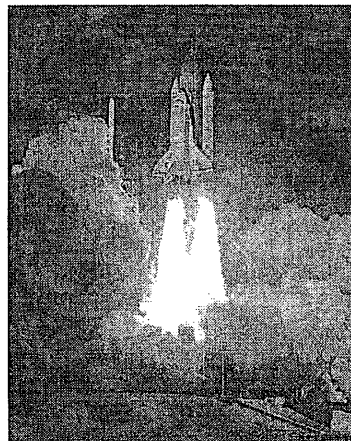


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Outline

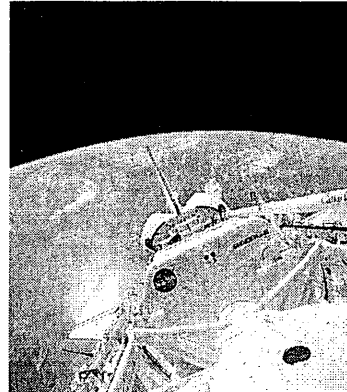
- Background
- SEA Establishment
- Obsolescence Drivers
- SEA Activities
- Issues
- Mitigation Strategies





Background

- First Space Shuttle flight in 1981
- Fleet originally expected to be replaced with a new generation vehicle in the early 21st century
- Current projection is until 2020
- Aging vehicle and systems present obsolescence issues

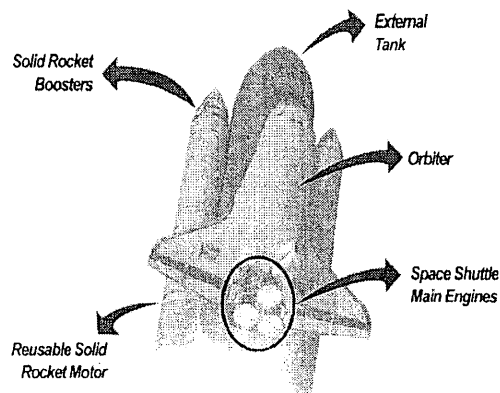


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Background

Space Shuttle Program (SSP) elements proactively address environmental and obsolescence concerns and continue to improve safety and supportability



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SEA Establishment

- SSP Program manager created the Shuttle Environmental Assurance Initiative in 2000



- SEA is to provide an integrated approach for the SSP to:
 - promote environmental excellence,
 - proactively manage materials obsolescence, and
 - optimize associated resources.
- SEA membership is comprised of representatives from the SSP Elements, Integration, Space Flight Operations Contract, SSP Contractors, and other NASA Organizations

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Obsolescence Drivers and SEA Issues

Obsolescence Drivers:

- Vendor Economics
- Industrial/Safety Hazard
- Natural Disaster
- Obsolescent Technology
- Government Regulations (EPA, OSHA, State)

SEA Issues:

SEA issues present risk to the SSP, and are environmentally-driven or require material re-qualification.

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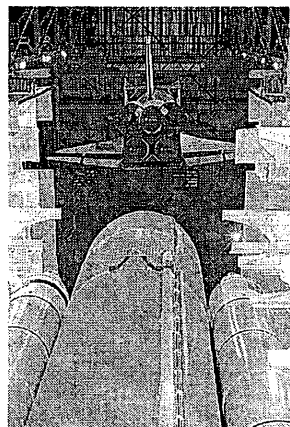
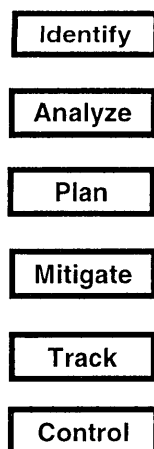
SEA Work Areas

Facilitation/Communication
Issue Management
Emerging Regulations
Interfaces
Resources
Documentation

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Issue and Risk Management Process



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Regulatory Assessments

Clean Air Act	Clean Water Act
Revisions to Volatile Organic Compound (VOC) Definition	Metal Parts and Machinery Effluent Guidelines
Misc. Metal Parts and Products NESHAP	Toxic Substances Control Act
Misc. Organic NESHAP	Perfluorooctyl Sulfonates Significant New Use Rule
Engine and Rocket Testing NESHAP	Occupational Health and Safety Administration
Plastic Parts Surface Coating NESHAP	Perchloroethylene/Hexavalent Chromium/Glycol Ethers/Hydrazine
Fabric Coating, Printing and Dyeing NESHAP	Presidential Mandate
Friction Products NESHAP	Executive Order 13148
Organic Liquids Distribution NESHAP	
SNAP Proposal on HCFC Use in Foams	
HCFC Production, Import and Use Allowance System	
Perchloroethylene/Hexavalent Chromium/Glycol Ethers/Hydrazine	

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Interfaces

NASA

- Materials Replacement Technology Team (NMRT2)
- Acquisition Pollution Prevention (AP2)
- Headquarters Code JE
- Environmental Management Offices (EMOs)
- EEE Parts Working Group
- Workmanship Technical Committee
- SSP Integrated Logistics Panel

Joint Group on Pollution Prevention

- NASA/Air Force/Army/Navy/Defense Contract Management Agency

Department of Defense

Air Force

United States Environmental Protection Agency (EPA)



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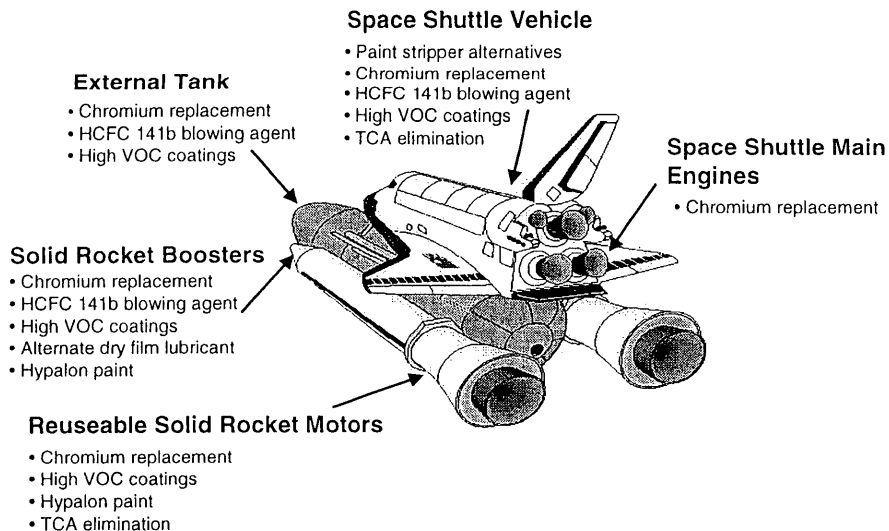


SEA Issues

Alternate Solvents
Trichloroethane (TCA) Elimination (SSV Use)
Trichloroethane (TCA) Elimination (RSRM Use)
Chemical Paint Stripper Alternatives
Alternate Coatings, Inks, and Finishes
High Volatile Organic Compounds (VOC) Coatings
Hypalon Paint Replacement
Hexavalent Chromium Replacement: Conversion Coating
Hexavalent Chromium Replacement: Alkaline Cleaners
Hexavalent Chromium Replacement: Primers
Alternate Dry Film Lubricant (Lube-Lok)
Alternate Foams
HCFC 141b Blowing Agent



Issues Across Shuttle Elements





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Mitigation Strategies

Issue	Mitigation Approach
Alternate Solvents	
TCA Elimination	Waiver/Stockpile/Replace
Chemical Paint Stripper Alternatives	Replace
Alternate Coatings, Inks, and Finishes	
High VOC Coatings	Replace
Hypalon Paint	Replace/Monitor
Chromium Replacement: Conversion Coating	Replace
Chromium Replacement: Alkaline Cleaners	Replace
Chromium Replacement: Primers	Replace
Alternate Dry Film (Lube-Lok)	Replace
Alternate Foams	
HCFC 141b Blowing Agent	Waiver/Stockpile/Replace

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